

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 20-29 are pending in the present application with Claims 20, 24, 28 and 29 having been amended by the present amendment.

In the outstanding Office Action, Claims 20-29 were rejected under 35 U.S.C. §112, second paragraph; and Claims 20-29 were rejected under 35 U.S.C. §103(a) as unpatentable over JP 3-238804 (JP '804) in view of EPO 0308334 (EPO '334).

Applicants thank the Examiner for the courtesy of an interview extended to Applicants' representative on May 15, 2002. During the interview, the differences between the present invention and the applied art were discussed. No agreement was reached pending the Examiner's further review when a response is filed. Arguments presented during the interview are reiterated below.

Regarding the rejection of Claims 20-29 under 35 U.S.C. §112, second paragraph, Claims 20, 24, 28 and 29 have been amended in light of the comments noted in the outstanding Office Action and as shown in the marked-up copies. Accordingly, it is respectfully requested this rejection be withdrawn.

Claims 20-29 stand rejected under 35 U.S.C. §103(a) as unpatentable over JP '804 in view of EPO '334. This rejection is respectfully traversed.

The present invention currently includes independent Claims 20, 24, 28 and 29. For example, independent Claim 20 is directed to a magnetic circuit including a magnetic layer coupled to a conductive winding, and a plurality of walls of insulating material disposed within the magnetic layer at positions perpendicular to a median line of the magnetic layer. The plurality of walls of insulating material generate a demagnetizing field in the magnetic

layer. Thus, the magnetic permeability will be lowered without the overall shape of the circuit or the magnetic material being modified, thereby improving the frequency tolerance of the circuit (see page 4, lines 18 to page 5, line 3). Claims 24, 28 and 29 include similar features.

Further, the median line of the magnetic layer is clearly shown in Figures 4 and 5, for example, as median line 62 (see Figure 4) and median line 74 (see Figure 5). Figures 4 and 5 also illustrate the plurality of walls 64, 76 positioned perpendicular to the median line for generating a demagnetizing field in the magnetic layer. Also, Figures 4 and 5 illustrate the conductive windings 66, 78 coupled to the magnetic layers 60, 70, respectively. For example, Figure 5 shows a magnetic circuit including the conductive winding 78 coupled to the magnetic layer 70 and placed opposite a magnetic surface 80 carrying data in magnetic form. In this example, the conductive winding 78 is used to generate a magnetic field when writing data to the magnetic surface 80, but the conductive winding 78 is not used to generate a magnetic field when reading data from the magnetic surface 80. That is, when the magnetic circuit is reading data, a magnetic field from the magnetic surface 80 carrying data in magnetic form is read by the magnetic circuit. Accordingly, the independent claims have been amended to recite a magnetic layer coupled to a conductive winding, as the conductive winding is not always used to generate a magnetic field.

The outstanding Office Action states JP '804 teaches a single magnetic layer 1 and evenly-spaced walls on the semi-insulating layer 2 extending perpendicular to the direction of the magnetic field and cites Figure 1b. However, as discussed during the interview, JP '804 does not teach or suggest a magnetic layer coupled to a conductive winding. Rather, the conductive wiring 1 is merely lengthened in JP '804 via the grooves (a) so as to increase the inductance. This differs from the claimed invention in which the magnetic layer guides a

magnetic field generated by the conductive winding, and the plurality of walls of insulating material are disposed within the magnetic layer at positions perpendicular to a median line of the magnetic layer for generating a demagnetizing field in the magnetic layer.

Therefore, it is respectfully submitted independent Claims 20, 24, 28 and 29 and each of the claims depending therefrom are allowable.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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IN THE SPECIFICATION

Please replace the paragraph at page 9, lines 13-20, with the following paragraph:

Figures 2a to 2e illustrate five steps of a process for making a magnetic layer buried in a substrate. In this example, the magnetic layer is a branch of a magnetic circuit belonging to a vertical built-in-coil-type magnetic head such as that described in [request] FR-A-2 745 111. In addition, this magnetic layer is multi-layer and the thicknesses of the various layers are not to the same scale in these figures.

IN THE CLAIMS

--20. (Twice Amended) A magnetic circuit comprising:

a magnetic layer coupled to a conductive winding [guiding a magnetic field along a given direction, wherein said magnetic layer is interrupted by]; and

a plurality of walls of insulating material disposed within the magnetic layer at positions perpendicular to [said direction] a median line of the magnetic layer generating a demagnetizing field in the magnetic layer at the positions of the plurality of walls.

24. (Twice Amended) A magnetic circuit comprising:

a magnetic layer coupled to a conductive winding [guiding a magnetic field along a given direction, wherein said magnetic layer is interrupted by]; and

a plurality of gaps disposed within the magnetic layer at positions perpendicular to [said direction] a median line of the magnetic layer generating a demagnetizing field in the magnetic layer at the positions of the plurality of gaps.

28. (Twice Amended) A magnetic circuit comprising:

a magnetic toroid coupled to a conductive winding [guiding a magnetic field along a circular direction wherein said toroid is interrupted by]; and

a plurality of radial gaps disposed within the magnetic toroid at positions perpendicular to a median line of the magnetic toroid generating a demagnetizing field in the magnetic toroid at the positions of the plurality of radial gaps.

29. (Twice Amended) A magnetic head comprising:

a bent magnetic circuit forming an air gap, said bent magnetic circuit coupled to a conductive winding [guiding a magnetic field along a given direction, wherein said bent magnetic circuit is interrupted by]; and

a plurality of gaps disposed within the bent magnetic circuit at positions perpendicular to [said direction] a median line of the bent magnetic circuit generating a demagnetizing field in the bent magnetic circuit at the positions of the plurality of gaps.--